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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,203	07/15/2003	Koji Takinami	MTS-3449US	8701
23122	7590	12/15/2004	EXAMINER	
RATNERPRESTIA			CHANG, JOSEPH	
P O BOX 980			ART UNIT	PAPER NUMBER
VALLEY FORGE, PA 19482-0980			2817	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/620,203

Applicant(s)

TAKINAMI ET AL.

Examiner

Joseph Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 4 is/are allowed.
- 6) ☒ Claim(s) 1, 5, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2 and 6-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/15/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A balanced oscillator having a pair of varactors with directional characteristics.

### ***Claim Objections***

Claim 2 is objected to because of the following informalities: the "is a" in fourth line should be --have --. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Friedman et al. (US 6,292,065)(Cited by the Applicants).

**Regarding Claims 1**, Friedman et al. discloses in Figure 1 an oscillator comprising a resonance circuit comprising:

a first series connected circuit having an inductive impedance element (138,140: from the view at nodes 114 and 115, inductors 138 and 140 are connected in series);

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a second series connected circuit (136, 128, 126, 134) having a first capacitive impedance element (136), first variable capacitive impedance element (128,126) connected in series with said first capacitive impedance element (136) and having a directional characteristic (136 shows directional voltage polarity capacitor symbol), and a second capacitive impedance element (134) connected in series with said first variable capacitive impedance element (126,128); and

a third series connected circuit (132,124,122,130) having a third capacitive impedance element (132), a second variable capacitive impedance element (124,122) connected in series with said third capacitive impedance element (132) and having a directional characteristic (132 shows directional voltage polarity capacitor symbol), and a fourth capacitive impedance element (130) connected in series with said second variable capacitive impedance element (122,124), and

wherein said first series connected circuit (138,140), said second series connected circuit (136,128,126,134), and said third series connected circuit (132,124,122,130) are connected in parallel (at nodes 114,115), and said first variable capacitive impedance element (128,126) and said second variable capacitive impedance element (124,122) are oppositely connected ("+" and "-" are faced each other via 130 and 136) with respect to either connection side (at the same electrical positions as Node 114 and Node 115) of said second series connected circuit (136,128,126,134) and said third series connected circuit (132,124,122,130), and wherein variable capacities of said first variable capacitive impedance element

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(128,126) and said second variable capacitive impedance element (124,122) are externally controlled to be varied (118 and 120 respectively).

**Regarding Claim 5**, Figure 3 shows a gate capacity of a MOS transistor (326,328,322,324).

**Regarding Claim 12**, Col. 1, lines 11-15 discloses communication equipment (communication link) comprising a transmission circuit, a reception circuit, and an antenna, where the reception circuit has an oscillator (communication link inherently comprises such components).

**Regarding Claim 13**, figure 1 shows an oscillator, as discussed above, which would necessarily perform the method claimed.

#### ***Allowable Subject Matter***

Claims 3 and 4 are allowed.

Claims 2, and 6-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the best prior art of record, Friedman et al., taken alone or in combination of other references, does not teach or fairly suggest the directional characteristic of the variable capacitive elements having larger or smaller parasitic capacitance to ground which are adjusted to determine an oscillation frequency.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakao et al. discloses a PLL with a differential control signal to a VCO.


Soyuer discloses a fully symmetric (differential) CMOS frequency synthesizer.

Burchfield discloses a fully differential voltage controlled oscillator having a large common mode rejection ratio.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is 571 272-1759. The examiner can normally be reached on Mon-Fri 0700-1730.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph Chang  
Patent Examiner  
Art Unit 2817